

Remarks/Arguments

Claims 1 – 16 are pending. Claims 1 – 16 stand rejected. More particularly, Claims 1-2, 6-7, 8-9 and 13-14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lin (United States Patent No. 6,421,466) in view of Mikoshiba (United States Patent No. 5,907,316). Claims 3-5, 10-12 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Lin in view of Mikoshiba and further in view of Correa (European Patent Application No. EP1136974A1). Applicant respectfully traverses these rejections, and requests their reconsideration and removal for at least the following reasons.

Response to Arguments

First, it should again be noted that Lin discloses a method for compressing a digital-video sequence of images comprising steps of computing motion vectors for video data of a sequence. It is mentioned that dithering methods can be used for reducing the width or number of bits of each pixel. It is not mentioned that the dithering method is based on computed motion vectors. See, e.g., col 8, lines 18-23.

Mikoshiba discloses an apparatus for displaying half-tone (e.g., digital) images that includes a motion vector detection unit for detecting a motion vector that indicates a moving direction of the halftone image, by comparing display data for a first frame of the halftone image with data for a second frame next to the first frame, and a differing unit for differing the display position of the halftone image from sub-frame to sub-frame in the first frame according to the motion vector.

As illustrated by Fig. 12A of Mikoshiba, the position of the image is shifted subframe by subframe in accordance with the computed motion vectors and the temporal position of the considered sub-frame within the video frame. The differing operation is not a dithering unit, e.g., a unit that refines the grey scale portrayal of video pictures. Instead, it merely serves to improve the display quality of dynamic pictures – as opposed to increase the number of displayed video levels.

By way of further example, Mikoshiba discloses changes applied to a halftone picture -- and not changes to a dithering function, that may be applied to a halftone picture. For example, a change in the picture position of a halftone picture is not a change in the spatial resolution of the dithering function. A change in the spatial resolution of the dithering function is, for example, that the dithering function is applied to a group of pixels or cells instead of being applied to a unique pixel or cell. A change in a dithering function does not at all correspond to a change of the position of the halftone image subframe by subframe as illustrated by figure 12A of Mikoshiba. Analogously, a change in the temporal resolution of the dithering function corresponds to a change of the periodicity of the dithering function, for example 4 frames instead of 2 frames. Such a change is not disclosed by Mikoshiba, which instead deals with the position of halftone images themselves.

Accordingly, as set forth in Applicant's previous response, the operation of the differing unit of Mikoshiba solves a different problem in a different way from the dithering unit of the present invention. Consequently, no combination of Lin and Mikoshiba teaches to change some parameters (phase, amplitude, spatial resolution and/or temporal resolution) of the dithering function (as opposed to a halftone image) in accordance with computed motion vectors. The differing operation of Mikoshiba and the dithering operation of the invention are completely different operations.

Wherefore, Applicant submits each of the claims presently appearing in the subject application is in condition for allowance, an early notification of which is earnestly solicited.

35 U.S.C. 103(a) Rejections

For purposes of completeness, Applicant will now address each of the individual rejections. Turning first to Claim 1, it is directed to a method for processing video data for display on a display device having a plurality of luminous elements. Claim 1 recites in relevant part, "changing at least one of the phase, amplitude, spatial resolution and temporal resolution of said dithering function in accordance with said at

least one motion vector when applying the dithering function to said video data." Thus, Claim 1 recites a method for processing video data using motion compensated dithering. See, e.g., *Specification, page 10, lines 1-6 (which discuss advantages of motion compensated dithering)*. Applicant submits the cited art fails to teach, or suggest motion compensated dithering, no less "changing at least one of the phase, amplitude, spatial resolution and temporal resolution of said dithering function in accordance with said at least one motion vector when applying the dithering function to said video data" – as is recited by Claim 1.

First, Applicant again notes Lin discloses computing motion vectors for video data. Lin teaches dithering methods can be used to reduce the width or number of bits for each pixel. However, the computing of motion vectors and dithering of Lin are wholly independent of one another. Hence, Lin fails to teach or suggest motion compensated dithering, and thus clearly fails to teach "changing at least one of the phase, amplitude, spatial resolution and temporal resolution of said dithering function in accordance with said at least one motion vector when applying the dithering function to said video data" – as is recited by Claim 1.

As set forth in Applicant's prior response, Mikoshiba fails to remedy this deficiency of Lin. Instead, Mikoshiba merely teaches using a motion vector detection unit for detecting a motion vector that indicates a moving direction of the halftone image itself, by comparing display data for a first frame of the halftone image with data for a second frame next to the first frame, and a differing unit for differing the display position of the half-tone image from sub-frame to sub-frame in the first frame according to the motion vector. Thus, Mikoshiba merely teaches changing a display position of an image according to motion vectors. Moreover, Mikoshiba, like Lin, fails to teach, or suggest, "changing at least one of the phase, amplitude, spatial resolution and temporal resolution of said dithering function in accordance with said at least one motion vector when applying the dithering function to said video data" – as required by Claim 1.

Consequently, importing the teachings of Mikoshiba into Lin merely supplements the deficient teachings of Lin to include changing the display position of an image according to motion vectors. Thus, there is no teaching or suggestion to change

parameters of a dithering function in accordance with motion vectors, as only the spatial and/or resolution of the video image would be changed. Accordingly, Applicant submits the Lin and Mikoshiba fail to teach, or suggest, motion compensated dithering at all, no less “changing at least one of the phase, amplitude, spatial resolution and temporal resolution of said dithering function in accordance with said at least one motion vector when applying the dithering function to said video data” – as is recited by Claim 1.

For the foregoing reasons, Applicant respectfully requests reconsideration and removal of the rejection of Claim 1. Applicant also requests reconsideration and removal of the rejections of Claims 2-7 as well, at least by virtue of these claims’ ultimate dependency upon a patentably distinct base Claim 1.

With regard to Claim 8, it analogously recites, “wherein at least one of the phase, amplitude, spatial resolution and temporal resolution of said dithering function is changeable in accordance with said at least one motion vector.” Accordingly, Applicant respectfully requests reconsideration and removal of the rejection of Claim 8 for at least the foregoing reasons. Applicant also requests reconsideration and removal of the rejections of Claims 9-16 as well, at least by virtue of these claims’ ultimate dependency upon a patentably distinct base Claim 8.

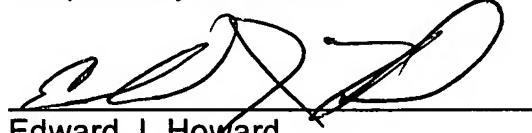
CONCLUSION

Applicant believes he has addressed all outstanding grounds raised by the Examiner and respectfully submits the present case is in condition for allowance, early notification of which is earnestly solicited.

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Should there be any questions or outstanding matters, the Examiner is cordially invited and requested to contact Applicant's undersigned attorney at his number listed below. Should there be any fees due and owing the Patent Office is authorized to charge such fees to Deposit Account 50-3208.

Respectfully submitted,



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